

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Previously Presented): A method for removing one or more metal cations contained in a liquid, comprising:

contacting the liquid at a temperature higher than or equal to 60°C, with a chelating ion exchange resin formed from polyazacycloalkane grafted on a solid support to chelate the metal cations on the resin, and

conditioning the resin at a pH of 4 to 6 prior to said contacting.

Claim 2 (Previously Presented): The method according to Claim 1 in which the contacting is carried out at a temperature of 60 to 80°C.

Claim 3 (Previously Presented): The method according to Claim 1 in which the conditioning is carried out at a pH of 4 to 5.

Claim 4 (Previously Presented): The method according to Claim 1 in which the conditioning is carried out by contacting said resin with a buffer solution, in which the pH is 4 to 6, wherein the conditioning may be preceded, followed or both preceded and followed, by a rinsing of the resin with a major solvent of the liquid.

Claim 5 (Previously Presented): The method according to Claim 1 which is carried out continuously,
wherein said resin is present in at least one column,
and wherein the contacting is carried out by passing a current of the liquid through the column.

Claim 6 (Previously Presented): The method according to Claim 1, further comprising regenerating the resin after the resin is saturated with chelated metal cations.

Claim 7 (Currently Amended): The method according to Claim 6, further comprising: regenerating the ~~column~~ resin by passing a regeneration solution through ~~the column(s)~~ at least one column in which the resins is present, in a reverse direction from the passing of the liquid.

Claim 8 (Previously Presented): The method according to Claim 7 in which said regeneration solution is one or more acid solutions.

Claim 9 (Previously Presented): The method according to Claim 7, further comprising:
treating the regeneration solution after the regenerating to recover the metal cations.

Claim 10 (Currently Amended): The method according to Claim 1, further comprising:
treating the liquid prior to the contacting, with an ion exchanger or organic or mineral adsorbent grafted on a support, wherein the adsorbent or ion exchanger is different from said polyazacycloalkane resin.

Claim 11 (Previously Presented): The method according to Claim 10, wherein the ~~contacting~~ treating is carried out with an adsorbent and said adsorbent is one or more silica gels.

Claim 12 (Previously Presented): The method according to Claim 10, wherein the contacting is carried out with an ion exchanger and said ion exchanger is a polyacrylate resin.

Claim 13 (Previously Presented): The method according to Claim 10 in which said treating is carried out continuously,

wherein said ion exchanger or adsorbent is present in at least one column and the ~~contacting~~ treating is carried out by passing a current of the liquid through at least one column positioned upstream of a column filled with the resin.

Claim 14 (Currently Amended): The method according to Claim ~~11~~ 10, further comprising:

regenerating the resin saturated with chelated metal cations with a regeneration solution, and

regenerating said ion exchanger or adsorbent when it is saturated with chelated metal cations,

wherein the regeneration of the resin and the ion exchanger or adsorbent is carried out under the same conditions and at the same time and with the same regeneration solution.

Claim 15 (Previously Presented): The method according to Claim 1 in which said metal cations are one or more metal cations selected from the group consisting of transition metals, heavy metals, metals from group IIIA of the periodic table, lanthanides, actinides and alkaline-earth metals.

Claim 16 (Previously Presented): The method according to Claim 13 in which said metal cations are one or more cations selected from the group consisting of cations of U, Pu,

Am, Ce, Eu, Al, Gd, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ag, Cd, B, Au, Hg, Pb, As, Ca, Sr, Mg, Be,
Ba and Ra.

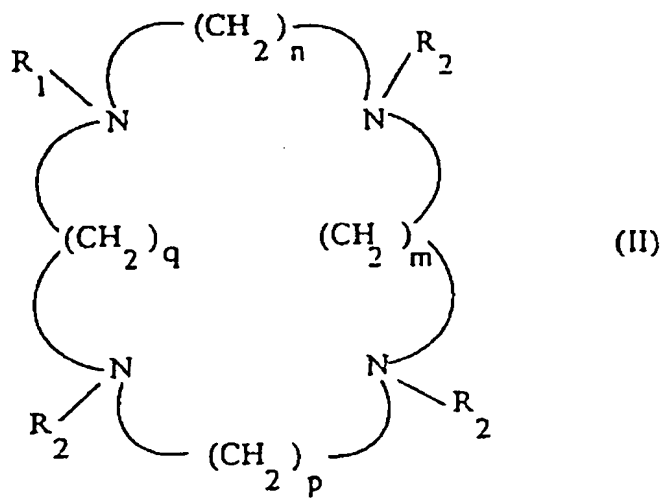
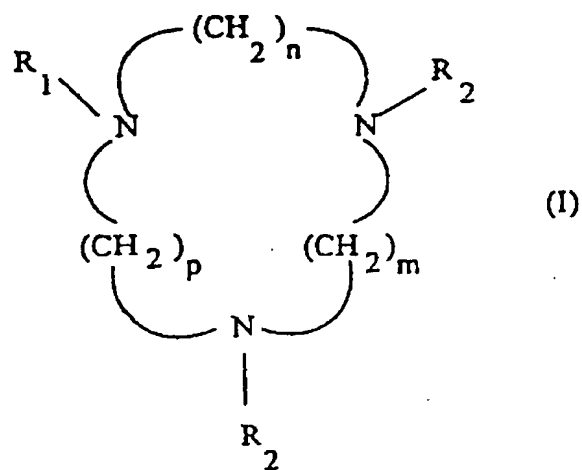
Claim 17 (Previously Presented): The method according to Claim 1 in which the liquid is an aqueous liquid.

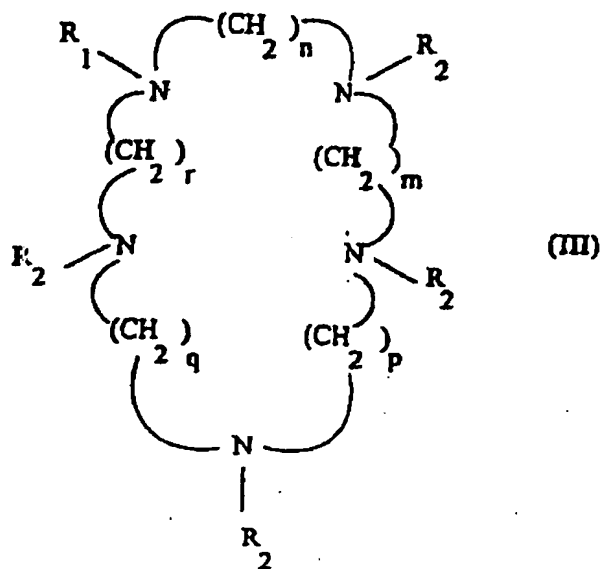
Claim 18 (Previously Presented): The method according to Claim 1 in which the liquid is a radioactive aqueous effluent with low activity.

Claim 19 (Previously Presented): The method according to Claim 18 in which said radioactive aqueous effluent is an aqueous effluent with low activity originating from an industrial evaporator of a treatment installation of effluents from a nuclear installation.

Claim 20 (Previously Presented): The method according to Claim 16 in which the liquid is a biological fluid and the metal cations removed are copper and aluminium.

Claim 21 (Previously Presented): The method according to Claim 1 in which said chelating ion exchange resin formed from polyazacycloalkane grafted on a solid support fulfills one of the three formulas (I), (II) and (III) below:





in which n, m, p, q, r which may be the same or different are equal to 2 or 3, R₁ is a solid support, R₂ represents the hydrogen atom or the (CH₂)₂-R₃ group, R₃ being a functional group chosen from the group formed by COOH, CONH₂, CH₂OH, CN or COOR₄, R₄ representing an alkyl or benzyl group, or R₂ represents the -(CH₂)-R₅ group, R₅ representing COOH or PO₃R₆, R₆ representing an alkyl group or hydrogen.

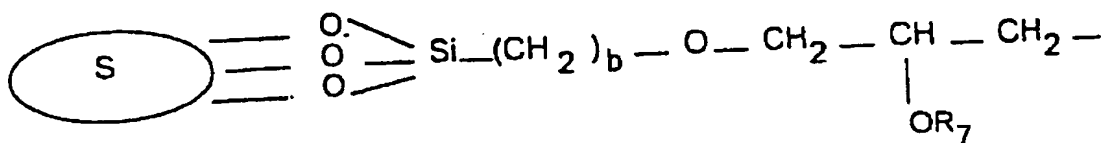
Claim 22 (Previously Presented): The method according to Claim 1 in which the solid support is an organic polymer that may or may not be crosslinked.

Claim 23 (Currently Amended): The method according to Claim ~~22~~ 1 in which the solid support is a residue of an organic polymer that may or may not be crosslinked with an alkyl halide.

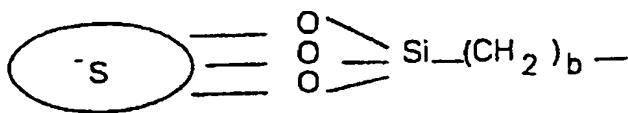
Claim 24 (Previously Presented): The method according to Claim 23 in which the solid support is a residue of chloromethyl polystyrene.

Claim 25 (Previously Presented): The method according to Claim 24 in which a grain size distribution of said chloromethyl polystyrene is between 20 and 400 mesh.

Claim 26 (Currently Amended): The method according to Claim 21 in which R1 is a solid support of formula:



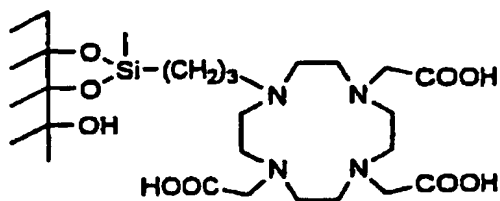
wherein OR



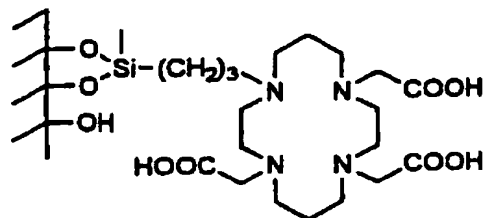
wherein S represents a silica gel, b is between 1 and 4 and R₇ is an alkyl group or a hydrogen atom.

Claim 27 (Previously Presented): The method according to Claim 26 in which a grain size distribution of the solid support is between 20 and 400 mesh.

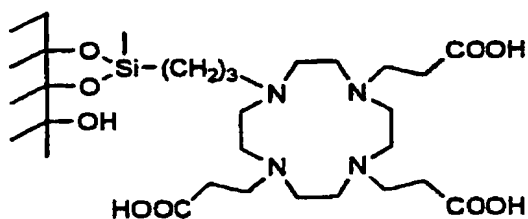
Claim 28 (Previously Presented): The method according to Claim 21 in which said resin is at least one selected from the group consisting of:



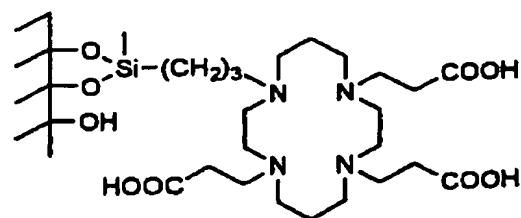
Si2222trA



Si2323trA



Si2222trPr



Si2323trPr

Claim 29 (Previously Presented): The method according to Claim 1 in which said solid support is silica, and said resin is prepared by a method in which silica is reacted with a spacer arm, then with azacycloalkane and then the substitution of the free amine functions of the polyazacycloalkane is carried out.

Claim 30 (Previously Presented): The method according to Claim 1 in which said solid support is silica and said resin is prepared by a method in which first, an unsubstituted polyazacycloalkane is reacted with a spacer arm, then said polyazacycloalkane carrying a spacer arm is grafted on the silica.

Claim 31 (Previously Presented): The method according to Claim 30 further comprising functionalizing said polyazacycloalkane carrying a spacer arm prior to its grafting on the silica.

Claim 32 (Previously Presented): The method according to Claim 30 in which the amount of polyazacycloalkane grafted per unit weight of solid support is greater than 0.4 mmol/g.

Claim 33-35 (Canceled).

Claim 36 (Previously Presented): The method according to Claim 6, further comprising:

regenerating the resin by passing a regeneration solution through at least one column comprising the resin in a reverse direction from the direction of the passing of the liquid.

Claim 37 (Previously Presented): The method according to Claim 17, wherein the liquid is a biological fluid and the metal cations removed are copper and aluminum.

Claim 38 (Previously Presented): The method according to Claim 4, wherein the conditioning of said resin is carried out by contacting said resin with an aqueous buffer solution and the major solvent is distilled water.

Claim 39 (Previously Presented): The method according to Claim 8, wherein one or more of the acid solutions is a nitric acid solution.

Claim 40 (Previously Presented): The method according to Claim 20, wherein the biological fluid is blood.

Claim 41 (Previously Presented): The method according to Claim 23, wherein the alkyl halide is an alkyl chloride.

Claim 42 (Previously Presented): The method according to Claim 25, wherein the grain size distribution of said chloromethylpolystyrene is between 20 and 70 mesh.

Claim 43 (Previously Presented): The method according to Claim 26, wherein b is equal to 3.

Claim 44 (Previously Presented): The method according to Claim 27, wherein the grain size distribution of the solid support is between 20 and 70 mesh.

Claim 45 (Previously Presented): The method according to Claim 29, wherein the substitution of the free amine functions is carried out by a carboxylic function group.

Claim 46 (Previously Presented): The method according to Claim 30, wherein the polyazacycloalkane is at least one of a cyclam and a cyclene.

Claims 47-48 (Canceled).

Claim 49 (Previously Presented): The method according to Claim 37, wherein the biological fluid is blood.

BASIS FOR THE AMENDMENT

Claims 1-32, 36-46 and 49 are active in the present application. Claims 33-35 and 47-48 are canceled claims. Claims 7, 10, 11-14, 23, and 26 are amended herein for clarity.

Claim 47 is now a canceled claim.

Applicants submit the amendment to the claims addresses matters of form and raises no new issues for consideration.

No new matter is added.